CND(Adm.) 365

THE THRIFTY FOOD PLAN, 1983

Consumer Nutrition Division
Human Nutrition Information Service
U.S. Department of Agriculture
Hyattsville, Maryland 20782

August 1983

CONTENTS

LIST OF TABLES

SUMMARY

USDA's thrifty food plan developed in 1975 has been revised. The 1983 revision incorporates new research-based information on consumption, prices, and nutrient composition of foods and on human nutritional requirements. The revised plan is at the same general level of cost as the thrifty food plan it replaces—the plan specified by Congress as the basis for benefits in the Food Stamp Program (1).

The thrifty food plan is made up of different types of foods (food groups) that households might buy, or obtain from other sources, to provide nutritious meals and snacks for household members. In the plan, quantities of food groups are suggested for men, women, and children of different ages (table 1). A plan for any household can be determined by totaling quantities of foods suggested for persons of the sex and age of household members.

USDA believes that the food plan that is least disruptive to food practices will be most acceptable. Therefore, in developing the plan, average quantities for food groups reported in a nationwide survey by households eligible to receive food stamps were changed only as necessary to provide nutritious diets while controlling cost. The 1983 thrifty food plan contains more grain products and dry beans and less meat, poultry, and fish than food-stamp-eligible households reported on the average.

The 1983 thrifty food plan is superior to the 1975 plan in several respects. It is based on the most recent information on food composition, food consumption, food prices, and nutritional requirements. It assures, insofar as can be determined with available food composition data, sufficient levels of several nutrients not considered in the 1975 food plan development. In addition, it controls fat, cholesterol, caloric sweeteners, and sodium at moderate levels. Furthermore, the 1983 thrifty food plan is expected to be more acceptable than the earlier food plan to households who follow it. It contains more vegetables, fruit, and meat than the 1975 food plan.

Sample meals with recipes and lists of foods used in their preparation for four-member households have been developed. Such sample meal plans show how foods in the thrifty food plan can be combined into appetizing and nutritious meals. Single copies of the meal plans are in Making Food Dollars Count, 405L, available for $.50 from the Consumer Information Center, Pueblo, Colorado 81009.

THE THRIFTY FOOD PLAN, 1983[1]

The thrifty food plan presented in this report was developed by the Human Nutrition Information Service (HNIS) of the U.S. Department of Agriculture. It replaces the 1975 thrifty food plan (TFP 75), which was used as the basis for the coupon allotment for the Food Stamp Program starting in January 1976. The 1983 thrifty food plan (TFP 83) will be used as the basis for food cost estimates released monthly by the Department starting in 1983.

Information about the revised thrifty food plan is presented here in three parts: (1) the thrifty food plan—what it is and why it was revised, (2) the development of the plan, and (3) the estimated costs for the plan.

I. The Thrifty Food Plan, 1983

What is the thrifty food plan?

The thrifty food plan (TFP 83) is the least costly of four food plans to be developed by HNIS in 1983. Like the more costly plans, this plan specifies the quantities of different types of foods (food groups) that households might use to provide nutritious diets for household members. The thrifty food plan includes larger proportions of the foods that are economical sources of nutrients than the other plans.

The quantities of 31 food groups suggested in the thrifty food plan for men, women, and children of different ages are shown in Table 1. These quantities can be totaled for household members to determine the food plan for any household. Food costs for a household following the food plan can be estimated from costs for the plan which are released monthly by HNIS (table 2). In estimating these costs, HNIS bases assumptions about the kinds and amounts of foods in the food groups on the food consumption of households eligible to receive food stamps that were surveyed in 1977-78. A food list for a month for a four-person household following TFP 83 is presented in the Appendix.

Why was the thrifty food plan revised?

The Department has prepared guides for selecting nutritious diets at different levels of cost for almost 50 years. Such guides, or food plans, are revised from time to time to take into account new information about nutritional needs, nutritive values of foods, food consumption, and food prices.

Quantities of food groups in the food plans at four levels of cost—thrifty, low-cost, moderate-cost, and liberal—were last revised in 1974-75 (2,3). The 1974-75 revision of the plans was based on the Recommended Dietary Allowances (RDA) released in 1974 by the National Academy of Sciences-National Research Council (NAS-NRC) and food consumption data from a nationwide food consumption survey conducted by USDA in 1965-66.

---

[1]Prepared by Betty B. Peterkin, Andrea J. Blum, Richard L. Kerr, and Linda E. Cleveland, Consumer Nutrition Division, Human Nutrition Information Service, U.S. Department of Agriculture, Federal Building, Hyattsville, MD 20782.

The food plans were revised in 1983 for several reasons:

- Dietary standards used in the 1974-75 food plans needed revision. In 1980 the NAS-NRC revised the RDA (4). Recommended amounts of ascorbic acid, vitamin B_6, vitamin B_{12}, thiamin, riboflavin, phosphorus, and magnesium were changed for some sex-age categories. The major changes were increases in ascorbic acid for all categories and in vitamin B_6 for some categories. The 1980 RDA were used to define the lower limit for nutrients and the level of food energy in the plans. (See page 4.) Also fat, cholesterol, caloric sweeteners, and sodium were controlled at moderate levels in the 1983 food plans. Of these dietary factors, only fat was controlled in the earlier plans. However, attempts were made to control the level of cholesterol by limiting the number of eggs and to control the level of sweeteners by limiting the amount of sugar and sweets in the 1975 food plans.

- New information on the content of nutrients in foods has become available since 1974-75. Also the nutritive values of some foods have changed since 1974-75. For example, the enrichment levels for certain B vitamins in bread and flour were increased in 1975. The most recent food composition data available in HNIS's Nutrient Data Bank were used to estimate the nutrient content of foods in the food plan. Levels of food energy, fat, protein, calcium, iron, magnesium, vitamin A value, thiamin, riboflavin, niacin, vitamin B_6, vitamin B_{12}, and ascorbic acid were estimated for the earlier plan; in addition, levels of zinc, phosphorus, folacin, vitamin E, cholesterol, caloric sweeteners, and sodium were estimated for the 1983 plan.

- More recent information on food eaten by men, women, and children of different ages on a nationwide basis became available. USDA's Nationwide Food Consumption Survey 1977-78 (NFCS) provided information on the food intake of individuals in the households eligible to receive food stamps (5). It also provided detailed information on the quantities and money value of food used (purchased, home-produced, or received as gift or pay) by the total household (6). Data from this study were used to estimate the quantities of foods used to prepare meals and snacks for men, women, and children of different ages. These quantities of foods made up the food consumption patterns which were used as starting points in developing the new plan. (See page 7.) Quantities were specified for 31 food groups, an increase from the 17 groups in the earlier plans. The number of food groups was increased to group foods with high and low content of certain dietary components not considered in TFP 75 and to help deal with the increased use of commercially prepared foods.

- Shifts have occurred in food prices since 1975. Prices for most foods increased, but some increased more sharply than others. Prices paid by survey households in 1977-78, updated to 1981 levels, were used in revising the plan.

- Food plans for older adults were changed from individuals 55 years and over in TFP 75 to 51 years and over in TFP 83 to be consistent with the RDA age groupings. Food plans for the infant and for pregnant and nursing women were discontinued in 1983.

II. Development of the Thrifty Food Plan, 1983

Procedures in brief

Procedures for revision of the thrifty food plan are summarized below:

1. The mathematical model used for TFP 75 was adapted for use in developing TFP 83.

2. The group of households from the 1977-78 NFCS to be used as the basis for the food consumption patterns, the nutritive value per pound of food groups, and the base food prices was selected.

3. The dietary standards for the plan were determined.

4. The level of household discard of edible food was specified.

5. The sex-age categories were defined.

6. Food groups for which quantities in the plan were to be specified were defined.

7. The nutritive value per pound of each food group was calculated assuming selections of items within groups based on average consumption of the selected survey households.

8. Prices reported by the selected survey households in 1977-78 were updated to January 1981 levels and the average price per pound of each food group was calculated assuming selection of items within groups based on average consumption of households.

9. Food consumption patterns in terms of quantities of food groups (as purchased) for the sex-age categories were derived from survey data for households and household members.

10. The nutritive value of food in consumption patterns was calculated and compared to the dietary standards.

11. Upper and lower limits on quantities of each food group allowed in the plan for each sex-age category were defined.

12. The cost of food in consumption patterns was calculated and compared to costs of the current thrifty food plan.

13. Costs for the food plans for the sex-age categories were specified.

14. The mathematical model was used to develop the revised thrifty food plan (TFP 83) to meet the dietary standards, cost specifications, and food group quantity limits.

15. The plan was interpreted in menus with food lists and recipes for selected households.

The mathematical model

In developing the 1983 food plans, the quadratic programming model used in developing the 1974-75 food plans (3) was adapted to accommodate additional food groups and dietary substances. The adapted model selected the optimum plan for each sex-age category—the quantities of 31 food groups that represented as little change from the quantities of the food groups used (food consumption pattern) as was necessary to meet specifications. Specifications were set for the nutrient content and cost of the total plan and for quantities for each of the food groups.

"Change" was measured in terms of weighted squared deviations from the amount of food groups in the consumption pattern, and total change was minimized. The weights were set to cause deviations to be minimized on the basis of the percentage change rather than change in pounds of food groups. The weighting of squared deviations resulted in small changes in amounts of several food groups, rather than a large change in one group to meet specifications.

Survey households as basis for plan

Data from the Survey of Food Consumption in Low-Income Households, conducted as part of NFCS were used as the basis for the food consumption patterns and base food prices in the thrifty food plan development. In this part of the survey, conducted from November 1977 through March 1978, data were collected for about 4,400 housekeeping households eligible for the Food Stamp Program. Data included quantities and prices (or costs) of foods used by the household during the week prior to the household interview (6) and the food intake of household members the day before, the day of, and the day following the interview (5). Food consumption behavior and prices of households eligible for the Food Stamp Program were considered most appropriate as a starting point for a thrifty food plan used to determine program benefits.

Dietary standards

Dietary standards for the thrifty plan, the same standards used for the three more costly food plans, were determined after extensive study of the dietary change required to meet various sets of standards (7-9). The standards and the rationale for their use are discussed elsewhere (9). Briefly, the standards are as follows:

Energy.—Midpoint of the 1980 RDA range (4).

Fat, cholesterol, caloric sweeteners, and sodium.—Amounts of these substances were limited to moderate levels:

Fat.—35 percent of energy or less.
Cholesterol.—350 milligrams per day or less.
Caloric sweeteners.—12 percent of energy or less.
Sodium.—1,600 milligrams of sodium per 1,000 kilocalories or less.

Protein, vitamins, and minerals.—At least the 1980 RDA level with these exceptions:

Vitamin B_6.—The ratio of 0.02 milligrams of vitamin B_6 per gram of

protein—the basis for the RDA—was used rather than the RDA itself. The RDA for vitamin B_6 assumes protein intakes for adults well above protein RDA levels and levels in the food plans.

Iron.—For the child 1 to 2 years, at least 90 percent of the RDA is required from the food plan itself. Cereal fortified with iron is recommended as a source of the remaining 10 percent of the RDA.

Zinc.—A standard of 80 percent or more of the RDA was used. The full RDA was not used because the U.S. food supply does not provide sufficient zinc to meet RDA levels.

Folacin and vitamin E.—Food composition data for these nutrients are notably insufficient and/or unreliable. However, the composition data available were used to estimate the content of the food plans and attempts were made to develop food plans to provide goals of 80 percent RDA or more for folacin and vitamin E.

Food plans developed to meet the RDA in full would be expected to provide generous amounts of nutrients for most people. The NAS-NRC states, "Differences in the nutrient requirements of individuals are ordinarily unknown. Therefore, RDA (except for energy) are estimated to exceed requirements of most individuals and thereby to ensure that the needs of nearly all in the population are met." NAS-NRC further states, "The basis of estimation of RDA is such that, even if a specific individual habitually consumes less than the recommended amounts of some nutrients, his diet is not necessarily inadequate for those nutrients (4)."

In developing the food plans, standards were not specified for some dietary factors for which RDA are established. The requirement for vitamin D for normal people can be met by exposure to sunlight. For persons whose activities limit their exposure to sunlight, the RDA of 5 to 10 micrograms per day should be provided by the diet or by supplementation. Some food sources of vitamin D are eggs, liver, butter, and milk fortified with vitamin D. Iodization of salt is an efficient way to supplement dietary iodine; however, there is increasing evidence that levels in U.S. diets are abundant (10).

Estimated safe and adequate ranges of intakes were estimated by NAS-NRC for the first time in 1980 for the vitamins—K, biotin, and pantothenic acid; the trace elements—copper, manganese, flouride, chromium, selenium, and molybdenum; and the electrolytes—sodium, potassium, and chloride. Because of the tentative nature of these estimates and insufficient food composition data, levels of these substances (except sodium) were not considered in developing the 1983 food plans.

Dietary fiber is another important dietary factor. It is necessary for the normal functioning of the intestinal tract. The food plan provides fiber in the whole-grain cereals, vegetables, fruits, and legumes it contains.

Allowance for household discard of food

The thrifty food plan specifies quantities of foods as they are brought into the kitchen. Some of this food, such as bones, fruit pits, and peelings, is discarded because it is inedible. In addition, it is assumed that food plan users discard one-half of the drippings and trimmable fat from meat, poultry,

and fish. Food composition data used in food plan development include adjustments to exclude energy and nutrients in inedible parts of food, one-half of the meat, poultry, and fish drippings and fat, and vitamins lost during cooking of all foods.

In most households some edible food does not get eaten. For example, some edible food may be discarded during preparation, as plate waste, or due to spoilage. To allow for such discard without jeopardizing the nutritional quality of the diet, 5 percent is added to the dietary standards specified for energy, protein, vitamins, minerals, and other dietary factors. (The dietary standard plus 5 percent is referred to as the nutritional goal for the food plan.)

Little is known about the amount of edible food households discard. Discard assumptions for TFP 83 are the same as those used for TFP 75. Preliminary unpublished results from a recent study conducted by HNIS using NFCS data tend to support the assumption that households with low food costs per person discard less edible food than households with higher food costs. In the study the average daily food intakes from home food supplies reported by household members were compared with the reported quantities of foods used by households (converted to ready-to-eat weight basis). At least some of the difference between these two measures of consumption represents edible food discard.

Sex-age categories

Food plans were developed for 11 sex-age categories. Food consumption behavior, nutritional requirements, and consistency with categories used for presenting the RDA and those used previously for the food plans were factors considered in defining the 11 categories for TFP 83:

Child: 1-2 years, 3-5 years, 6-8 years, 9-11 years

Male: 12-14 years, 15-19 years, 20-50 years, 51 years and over

Female: 12-19 years, 20-50 years, 51 years and over

Food groups

The 31 food groups include all of the several thousand foods households eligible for food stamps reported using in 1977-78 (table 3). Alcoholic beverages were reported in the survey but are not included in the food plans. In grouping foods, their composition, cost, and use in meals were considered. For example, vegetables in the "high-nutrient vegetables" group were systematically selected for their relatively high nutrient-to-calorie ratio and content per serving of vitamin A, vitamin B_6, ascorbic acid, iron, and magnesium. Meats were grouped as lower cost and higher cost by the cost per unit of protein they provide. Commercially-prepared mixtures were set apart because their nutritive values, nutrient-to-calorie ratios (8) and nutrient-to-dollar ratios (table 4) differ from those of food groups containing their principle ingredients.

Despite efforts to group foods by their composition, and to some extent by their price levels, the nutrient content and price levels of foods within a single group differ. Therefore, it is assumed that persons following the

plan make selections from each food group that are as nutritious and economical as selections made on the average by the food stamp eligible households surveyed. Individuals following the plan are expected to use quantities of food groups such as bread, cereal, flour, and legumes specified in the plan. However, they are expected to be no better than average shoppers in finding the most economical and nutritious kinds of bread, cereal, flour, and legumes. (See Other economical food plans, page 13.)

Nutritive values for food groups

The average nutritive value per pound for each of the 31 food groups was calculated to reflect the kinds and amount of foods reported by households eligible for food stamps. That is, the nutritive value per pound of the 31 food groups was calculated by weighting the nutritive value of each food in the food group by the average number of pounds reported as used by the survey households. Nutritive values are for the edible part of a pound of food (as purchased) with vitamin values adjusted for losses during cooking. Values for meat, poultry, and fish items were adjusted to assume discard of one-half of the drippings and trimmable fat.

Food composition data used were compiled primarily by the Consumer Nutrition Center's Nutrient Data Research Group. Dietary factors covered were energy, protein, vitamin A value, thiamin, riboflavin, niacin equivalents, vitamin B_6, vitamin B_{12}, folacin, ascorbic acid, vitamin E, calcium, iron, magnesium, phosphorus, zinc, total fat, saturated fat, cholesterol, caloric sweeteners, and sodium. Food composition data were limited for vitamins B_6, B_{12}, and E, folacin, magnesium, zinc, sodium, cholesterol, saturated fat, and caloric sweeteners. However, available information was used to estimate levels for food consumption patterns and for the food plans.

Prices for food groups

Prices were reported by survey households for each purchased food used. For home-produced foods and foods received as gift or pay, the average price per pound paid for that food by survey households in the same region and season was used. Prices of each food were updated from the time of the survey (1977-78) to January 1981 levels using the change for that period in the Consumer Price Index's detailed food expenditure category which contains the food. (See page 14.) Table 4 shows the quantities of selected nutrients from a dollar's worth of food from each of the 31 food groups. These quantities were derived from the nutritive value and price (updated to January 1981) per pound of food groups.

Food consumption patterns

Data from the Survey of Food Consumption of Low-Income Households 1977-78 were used to estimate quantities (as purchased) of 31 food groups used for the preparation of meals and snacks for persons in each of the 11 sex-age categories. Quantities are in terms of food as purchased, for which reported costs are available from the survey. These food consumption patterns are the "starting points" for the thrifty food plans for the 11 sex-age categories.

The quantities of food in the consumption patterns were estimated because survey households were not asked to report the quantity (as purchased) of food they used for meals and snacks for each household member. Such information is generally not known by the respondent. However, households reported the quantity (as purchased) of the foods used by the entire household in a week and the quantity (as served) of foods each household member ate for a 3-day period. From these data, the share of household food that was used for household members in the 11 sex-age categories was estimated as follows: Foods eaten were grouped into the 31 food groups. Average quantities of foods eaten by household members in the sex-age categories were weighted by the sex-age composition of the survey households to estimate the average quantity eaten per person in the households. Then, for each food group, the ratios of the quantity eaten for the various sex-age categories to the estimated average quantity eaten per person in the households were determined. The ratios were then applied to the average quantity (as purchased) of the food group used per person by the survey households to estimate the quantity of food group used for various sex-age categories.

Quantities of the 31 food groups for each of the 11 sex-age categories were then increased or decreased proportionately to provide the nutritional goal for energy—the midpoint of the RDA range plus the 5 percent allowance for discard of food. Thus, the quantities of food were adjusted to provide energy levels the NAS-NRC considers sufficient before quantities were modified by the computerized model to meet other nutritional goals and control cost. Total food energy for a sex-age category from the survey data may have differed from the goal for several reasons. More or less food may have been eaten than was required to provide the RDA, or the discard of edible food due to plate waste and spoilage in the household may have been more or less than the amount allowed for in the plan. In adjusting quantities of food groups proportionately to provide the food energy goal, it was assumed that all food groups were equally affected by such differences.

Nutritive value of food in consumption patterns

Although the food consumption patterns for the sex-age categories, by design, met the RDA midpoint for food energy, none of the 11 consumption patterns met all of the dietary standards established for the food plans (table 5). Generally the nutrients found to be well below the RDA in publications reporting nutrient intakes from NFCS (5) were also found to be short in the food consumption patterns. However, the severity of nutrient deficits is less evident for the patterns in which quantities of foods were usually adjusted upward to provide the RDA midpoint for energy.

Patterns for all sex-age categories provided dietary standards for protein, vitamin A value, vitamin B_6, thiamin, riboflavin, niacin equivalents, vitamin B_{12}, ascorbic acid, vitamin E, and phosphorus. However, patterns for some categories were short of standards in certain nutrients as follows:

Nutrient	Sex-age category
Folacin	Men, 51 years and over; teenage girls; women
Calcium	Children, 1-2 years; men, 51 years and over; teenage girls; women
Iron	Children, 1-2 years; teenage girls; women, 20-50 years
Magnesium	Boys, 15-19 years; men, 51 years and over; teenage girls; women
Zinc	Children, 1-2 years; men, 51 years and over; teenage girls; women

The fat content of food in consumption patterns exceeded the 35 percent-of-food energy standard for the food plans for all sex-age categories except boys 12-14 years. Cholesterol levels for some patterns were high. For example, males 15 years and over had levels from 460 to 520 mg per day. Caloric sweeteners accounted for 15 percent or more of energy intake for children 6 years and over and teenagers. Sodium content of food in all patterns exceeded safe and adequate levels specified as part of the 1980 RDA; however, pattern levels are believed to be unrealistically high because of the way the consumption of salt and seasonings was reported in the survey. (See footnote 5 on table 5.)

Because none of the food consumption patterns met all of the dietary standards for the food plan, adjustment to the patterns for all sex-age categories was required in developing the food plans.

Limits on quantities of food groups in the plan

For each food group, minimum and maximum quantities that could be included in the food plan were predetermined. Such limits help assure that the food plan will be practical as a basis for meal preparation. Generally, extremely broad quantity limits were used. The lower and upper limits were based on the 25th and the 90th percentiles on distributions of the quantity of food group used per person by survey households. More stringent upper limits were placed on three groups: Salt and seasonings; soft drinks, punches, and ades; and coffee and tea. Quantities of vegetable and fruit groups (except condiments and mixtures) in the food plans were not allowed to be below quantities in the consumption pattern. This special limit was imposed to assure that some dietary fiber of the type found in vegetables and fruits is contained in the plan.

Cost of food in patterns and in TFP 75

The January 1981 cost of food in the consumption patterns for the four individuals in a four-person household (woman and man, 20-50 years and children, 6-8 and 9-11 years) was 24 percent higher than the January 1981 cost of TFP 75 for the same four-person household. Therefore, development of thrifty food plans at the cost level of TFP 75 required adjustment of the quantities of food groups in the consumption patterns to reduce cost as well as to meet nutritional goals.

Costs for TFP 83

A cost for each sex-age category was predetermined. Costs were set to help assure that (1) sex-age categories would have an equal chance for a nutritious diet and (2) the January 1981 cost of TFP 83 would equal the January 1981 cost of TFP 75 for the four-person household used in setting the food stamp allotment. (If it had not been possible to develop a suitable plan at the TFP 75 cost level, the cost would have been increased.)

Costs were determined as follows: Using the quadratic programming model, two preplans were developed for each sex-age category--one at least cost and the other with no cost limit. Each preplan started with the food consumption patterns and met the dietary standards and quantity limits established for the 1983 thrifty food plan. Costs were determined for each of the categories by adding a constant proportion of the difference between costs for the two preplans to the cost of the least-cost preplan. The proportion used was set to result in a January 1981 cost of TFP 83 equal to the January 1981 cost of TFP 75 for the four-person household.

The TFP 75 cost for the four-person household in January 1981 was higher than the cost for the least-cost preplan and lower than the cost of the no-limit preplan. To achieve the TFP 75 cost, 38.87 percent of the difference in the costs for the two preplans was added to the cost of the least-cost preplan. Costs for each of the sex-age categories were defined by adding 38.87 percent of the difference between the costs of their two preplans to the cost of their least-cost preplan.

The woman--whose consumption pattern is notably low in several nutrients--requires a larger share of the household dollars than reflected by consumption patterns if she is to meet nutritional goals. These procedures, which set household food cost shares for sex-age categories based on costs of nutritious diets with and without cost limitations, provide the woman with relatively more money for food than the other categories in the four-person household.

TFP 83 costs were lower than TFP 75 costs (updated to January 1981 level) for some sex-age categories--school-age children, teenage boys, and men 20-50 years. TFP 83 costs were higher for preschool-age children, men over 50 years, teenage girls, and women. TFP 83 costs were substantially higher for women over 50 years. These cost differences reflect differences in costs of food in consumption patterns from the 1965-66 and the 1977-78 surveys used as starting points for the food plans. They also reflect the relative costs of meeting nutritional goals used for TFP 75 and TFP 83. For example, the cost of TFP 83 for the older woman had to be relatively high to purchase foods needed to improve her dietary levels of zinc and folacin--nutrients not considered in developing TFP 75.

Thrifty food plan, 1983

The table below summarizes the weekly quantities of food from 11 major food groups in the food consumption patterns, TFP 83, and TFP 75 totaled for the four-person household:

Food group	Consumption pattern	TFP 83	TFP 75
	pounds, as purchased		
Potatoes (fresh weight)	4.7	4.8	6.2
Other vegetables, fruit	22.7	24.2	20.6
Cereal, flour	5.3	9.3	7.3
Bread	4.2	5.5	6.9
Other bakery products	2.9	2.5	3.9
Milk, cheese, ice cream (milk equivalent in quarts)	15.4	14.2	14.5
Meat, poultry, fish	17.2	10.9	8.3
Eggs (no.)	16.5	12.9	13.8
Dry beans, peas, nuts (dry, shelled weight)	1.1	2.0	1.7
Fats, oils	2.2	2.3	2.6
Sugar, sweets	3.8	2.9	3.6
Cost (January 1981)*	$68.53	$55.37	$55.37

*Includes cost of coffee, tea, soft drinks, punches, ades, and seasonings as well as foods listed.

TFP 83 meets all dietary standards (table 6) and food cost specifications. To achieve these, adjustments to food consumption patterns were required. Generally, adjustments increased the quantities of economical food sources of those nutrients which were short of goals in consumption patterns (table 5) and contain low to moderate levels of fat, cholesterol, caloric sweeteners, and sodium.

One way to measure the relative economy of food groups as sources of nutrients is by the amount of the nutrient a dollar's worth of food group provides (table 4). For example, the dry beans, cereal, and flour groups are among the most economical sources of vitamin B_6, folacin, iron, magnesium, and zinc. They also contain little or no cholesterol and fat. Meat, although a notably good source of iron and zinc, and other nutrients as well, is relatively expensive. Its use in the thrifty food plan is curtailed by cost limits. Fats and sugar groups are inexpensive sources of energy but are less attractive energy sources for the food plans than are flour, cereal, bread, and dry bean groups, which are better sources of several nutrients and are lower in fat and sweeteners.

Differences in TFP 83 and TFP 75 result from differences in both food consumption patterns and dietary standards used in their development. Lower quantities for most sex-age categories of fats, sugars, bakery products, and

eggs in TFP 83 than in TFP 75 resulted partly from lower consumption of foods in these food groups by households in the 1977-78 survey than in the 1965-66 survey. More meat, dry beans, vegetables, fruit, cereal, and flour were needed in the 1983 than in the 1975 plan, partly to help provide desired levels of folacin and zinc, nutrients not considered in the earlier plans. Lower standards for fat, caloric sweeteners, and cholesterol for the 1983 plans were also factors.

TFP 83--A day's food as served

Another, and perhaps more understandable, way to show TFP 83 is in terms of household measures of food as served on a daily basis (table 7). Selected foods in the plan for women and men 20-50 years of age, are compared with those in the consumption pattern below:

Food*	Unit	Woman		Man	
		Pattern	TFP 83	Pattern	TFP 83
		number of units			
Vegetables, fruit	1/2 c	3.8	4.9	4.4	4.3
Cereal, pasta, dry	1 oz	1.1	2.6	1.5	2.7
Bread	1 slice	3.7	5.8	5.2	8.4
Bakery products	1 slice	1.0	.3	1.2	1.2
Milk, yogurt	1 c	.7	1.1	1.0	.9
Cheese (per week)	1 oz	4.4	4.4	5.0	2.0
Meat, poultry, fish, boned	1 oz	5.0	4.1	6.8	4.0
Eggs (per week)	no.	4.1	4.2	6.2	3.9
Cooked dry beans, peas, nuts	1/2 c	.2	.7	.4	.7
Fats, oils	1 tbsp	2.5	.9	3.3	3.1
Sugar, sweets	1 tbsp	3.0	.7	3.8	4.9
Soft drinks, punches, ades	1 c	1.0	.1	1.2	.3
Total weekly cost (January 1981)		$15.81	$14.39	$20.99	$15.92

*See table 7 notes.

The modifications to consumption patterns for the sex-age categories depended partly on the nutritional shortcomings of the patterns. This is illustrated by the comparison of consumption patterns and TFP 83 for the woman and man above. The woman, whose pattern failed to meet TFP 83 standards for folacin, calcium, iron, magnesium, and zinc, had to increase consumption of foods that supplied these nutrients and decrease consumption of foods that provided energy but little or none of these nutrients. Her plan contains more milk, legumes, breads, cereals, and fruits and vegetables and less fats and oils, sugar and sweets, soft drinks, and bakery products than her consumption pattern. Conversely, the man's pattern provided TFP 83 standards for nutrients but considerably exceeded desired levels for fat and cholesterol. Therefore, he had to reduce quantities of certain food groups such as meat, cheese, and eggs that provide fat and cholesterol.

Sample meal plans

Sample menus with recipes and lists of foods used in their preparation for families of four persons were developed. These meal plans, which contain foods available in most stores across the country, illustrate some ways food in TFP 83 can be combined into economical and nutritious meals. The meal plans incorporate recommendations from families receiving food stamps who used the menus, food lists, and recipes for a trial period. These trials were conducted by the University of Maryland under contract with HNIS. The sample meal plans provide one basis for materials for educators, food stamp recipients, and others who want to translate the plan into practice.

Other economical food plans

In developing and estimating costs for the thrifty food plan, the basic assumption is made that families might be encouraged by nutrition educators to change the amounts of food groups they use to achieve a nutritious diet. But it is assumed that these families might not have either the skill or the opportunity to consistently select foods within food groups that are more economical than those selected on the average by survey households eligible for food stamps.

The thrifty food plan is only one of many combinations of food groups that could be developed at low cost. Amounts of food groups in consumption patterns could be changed in other ways to provide nutritious diets. While such combinations would deviate further than the thrifty food plan from food consumption patterns, they might be acceptable to some households.

Other plans at the same or lower cost than the thrifty food plan could be developed if selections of foods within food groups were limited to those foods which are the least expensive, rather than selections typical of those of survey households. For example, the thrifty food plan contains some fluid milk, as was typical of the consumption of the survey households. Nonfat dry milk costs less than fluid milk, yet provides as much or more of most nutrients supplied by fluid milk. Therefore, a plan that assumes the use of nonfat dry milk exclusively might be developed at a lower cost than the thrifty food plan cost. Or, a plan at the same cost as the thrifty food plan might be developed with only nonfat dry milk and more meat, poultry, and fish and less dry beans and grain products than the thrifty food plan contains.

Through guidance materials and nutrition education programs, families using food stamps and other families wishing to economize on food are encouraged to, and may alter their consumption to, include only the economical foods within the food groups.[2] However, for purposes of estimating the nutritive value and the cost of a plan for use nationwide, average selections of foods and average prices paid by survey families eligible for food stamps are believed to be a more reasonable basis.

---

[2]One USDA publication that provides information for food shoppers interested in economizing is "Your Money's Worth in Foods," HG 183, available for $3.50 from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.

III. Estimated Costs for the Thrifty Food Plan

U.S. average costs of foods in the thrifty food plan (and the three more costly plans) are estimated each month (see table 2) and released by USDA's news service. The costs are also released periodically in the Agricultural Research Service's Family Economics Review and to a list of educators, administrators, lawyers, and researchers who use these costs for a variety of purposes.

How costs are estimated

Average prices paid for over 2,400 different foods by households eligible for food stamps across the country in 1977-78 are used as a basis for the estimates for TFP 83. These average prices reflect the assortment of container sizes and brands, the quality of foods selected, and the price levels in stores where foods were purchased by survey households eligible for food stamps. Procedures used in updating costs of the plans with these prices are as follows:

1. Prices paid by survey households are updated by using the percentage change in price indexes of detailed food expenditure categories from the time of the survey to the month of the estimate. Indexes for these food expenditure categories are based on prices collected each month by the Bureau of Labor Statistics (BLS) from a representative sample of stores in selected cities across the country. For example: Survey households used as a basis for the thrifty food plan paid an average price of $1.00 a pound for ground beef in 1977-78; and the index for the food expenditure category containing ground beef reported by BLS in January 1981 is 65 percent higher than the index reported in 1977-78. A price of $1.65 ($1.00 + 65% of $1.00) is used for ground beef in estimating the cost of the thrifty food plan for January 1981.

2. The updated prices for foods in each food group for the thrifty food plan are weighted by the average amounts of foods used by the survey households to derive prices per unit—pound, quart, or number for the food groups.

3. The prices per unit are then multiplied by the number of units of food groups in the plan for each sex-age category (table 1) to determine the cost of foods from each food group.

4. Costs for the food groups for each category are totaled. These totals, rounded to the nearest 10 cents, are released as the cost of food at home for a week. Unrounded weekly costs are multiplied by 4.333, then rounded by the nearest 10 cents, to estimate the cost for the month. The June 1982 costs for the thrifty food plan (TFP 83) are shown in Table 2.

The cost of the plan for a household

The cost for food at home for a household following the thrifty food plan can be figured using Table 2 as follows:

1. Find the weekly cost for each person eating from household food supplies. List the cost opposite the age and sex of each person as follows:

- For household members who eat all meals at home (or carry meals from home, such as lunches or picnics), use the weekly cost given in Table 2.

- For household members who eat some meals out, deduct 5 percent for each meal not eaten at home from the cost in the table. For example, if a child eats lunch out five times a week, subtract 25 percent, or one-fourth, of the cost shown for the child's age group.

- For guests and others who occasionally eat in the household, list 5 percent of the cost in the table for the proper age group for each meal. Suppose grandmother eats her midday and evening meals with the family every Sunday. Add 10 percent, or one-tenth, of the amount for women of her age.

2. Next, total the costs listed and adjust the total if there are more or fewer than four persons usually eating at the household table. Costs in Table 2 are for individuals in households of four persons. Adjustment[3] is necessary because large households tend to buy and use foods more economically than small households. If the household has—

1 person.....add 20 percent
2 persons.....add 10 percent
3 persons.....add 5 percent
4 persons.....use as is
5 or 6 persons.....subtract 5 percent
7 or more persons.....subtract 10 percent

[3]Information on the derivation of the adjustment factors is available upon request from the Human Nutrition Information Service, Hyattsville, MD 20782.

Costs of TFP 83 and food costs of U.S. households

The cost of the thrifty food plan—the least costly of the four USDA family food plans—has been criticized by some as being overly generous and by others as being insufficient as the basis for the food stamp allotment. Household food consumption behavior as indicated by over 14,400 survey households (all incomes) in 1977-78 shows that 12 percent of U.S. households used food with a money value at or below the full food stamp allotment level for a household of the same size (table 8). Of those using food at or near the allotment level (90 to 110 percent of it), 9 percent selected food that provided the RDA for all 11 nutrients studied and 33 percent made selections that provided 80 percent or more of the 11 RDA.

As household food costs increased, the likelihood that household food would provide the RDA increased. At a hypothetical allotment level based on the low-cost food plan, 31 percent of household diets met the RDA in full and 64 percent achieved at least 80 percent of the RDA. However, high food cost alone did not assure that RDA were met. Even at the liberal food plan cost level, only 69 percent of the households had diets that met all 11 RDA.

Of the 4,400 households eligible for food stamps in the Survey of Food Consumption in Low-Income Households 1977-78, 23 percent used food valued below the full food stamp allotment level. Of those with food costs at or near the allotment level, 12 percent had diets that provided the RDA for all 11 nutrients and 34 percent had diets that furnished at least 80 percent of the 11 RDA.

REFERENCES

1. Section 1304 of the Agriculture and Food Act of 1981, Public Law 97-98, 95 STAT. 1282, December 22, 1981.

2. Peterkin, B. USDA family food plans, 1974. Family Economics Review, ARS-NE-36. Winter 1975, p. 3-12, Agr. Research Service, U.S. Dept. Agr.

3. Peterkin, B., Chassy, J., and Kerr, R. The thrifty food plan. CFE (Adm) 326. U.S. Dept. Agr. 1975.

4. National Academy of Sciences, National Research Council, Food and Nutrition Board. Recommended dietary allowances, 9th ed., Washington, DC: National Academy of Sciences, 1980.

5. U.S. Dept. Agr. Science and Education Administration, Consumer Nutrition Center. Food and nutrient intakes of individuals in 1 day in low-income households, 1977-1978. Nationwide Food Consumption Survey 1977-78, Prelim. Rpt. No. 11, 1982.

6. U.S. Dept. Agr. Science and Education Administration, Consumer Nutrition Center. Food consumption and dietary levels of low-income households, November 1977-March 1978. Nationwide Food Consumption Survey 1977-78, Prelim. Rpt. No. 8, 1981.

7. Peterkin, B., Shore, C., and Kerr, R. Some diets that meet the dietary goals for the United States. J. Am Dietet. A. 74:423, 1979.

8. Peterkin, B., Patterson, P., Blum, A., and Kerr, R. Changes in dietary patterns: One approach to meeting standards. J. Am. Dietet. A. 78:453, 1981.

9. Cleveland, L., Peterkin, B., Blum, A., and Becker, S. Recommended dietary allowances as standards for family food plans. J. Nutr. Ed. 15:8, 1983.

10. Park, Y. et al. Estimation of dietary iodine intake of Americans in recent years. J. Am. Dietet. A. 79:17, 1981.

APPENDIX

A sample food list for a month[1] based on the Thrifty Food Plan 1983

Potatoes	20-3/4 lb
Carrots, fresh	1-3/4 lb
Tomatoes, fresh	2-3/4 lb
Cabbage, fresh	5 lb
Lettuce	4-1/4 lb
Celery, fresh	1 lb
Onions, mature, fresh	3 lb
Other vegetables, fresh	12-3/4 lb
Leafy greens, canned	3/4 lb
Tomatoes, tomato products, canned	2-1/2 lb
Snap beans, canned	3-1/2 lb
Corn, canned	4-3/4 lb
Green peas, canned	2-1/4 lb
Other vegetables, canned and dry	4-3/4 lb
Leafy greens, frozen	1/2 lb
Other vegetables, frozen	2 lb
Vegetable juices	1/2 qt
Vegetable soups	2-1/2 lb
Citrus fruit, fresh and frozen	11 lb
Apples, fresh	9 lb
Bananas, fresh	6 lb
Other fruit, fresh and frozen	2 lb
Fruit, canned and dry	3-3/4 lb
Citrus fruit juices, single strength	6-1/2 qt
Other fruit juices, single strength	1-1/2 qt
Whole-grain/high-fiber breakfast cereals	3 lb
Other breakfast cereals	3-3/4 lb
Whole-grain/high-fiber flour, meal, rice, pasta	2-1/4 lb
Other flour, meal, rice, pasta	31-1/4 lb
Whole-grain/high-fiber bread	3-1/2 lb
Other bread	20-1/2 lb
Bakery products, mixtures mostly grain	10-3/4 lb
Milk, yogurt	51-3/4 qt
Cheese	2-3/4 lb
Cream, ice cream, other mixtures	4-3/4 lb
Lower-cost meats, variety meats	20 lb
Higher-cost meats, variety meats	4-1/2 lb
Poultry	14 lb
Fish, shellfish	1/2 lb
Bacon, sausage, luncheon meats	6-3/4 lb
Mixtures, mostly meat and alternates	1-1/4 lb
Eggs	4-2/3 doz
Dry beans	4-1/4 lb
Mature beans, canned	3-3/4 lb
Peanut butter	2-1/4 lb
Nuts (shelled weight)	1 lb
Margarine, butter	4 lb
Shortening, oil, salad dressing	6 lb
Sugar	7-3/4 lb
Other sweets	4-3/4 lb
Soft drinks, punches, ades	6-1/4 qt

---

[1] Provides for the food needs for a four-person household (man and woman 20-50 and children 6-8 and 9-11 years of age). In addition to foods listed, the plan provides for small amounts of some other foods: coffee, tea, cocoa, leavening agents, and seasonings.

Slightly revised
November 1985

Table 1.—Thrifty food plan, 1983: Quantities of food for a week[1]

Food group[2]	Child (years)				Male (years)				Female (years)[3]		
	1-2	3-5	6-8	9-11	12-14	15-19	20-50	51 and over	12-19	20-50	51 and over
	Pounds[4]										
Vegetables, fruit:											
Potatoes (fresh weight)	0.47	0.82	1.04	1.11	1.29	2.22	1.50	1.55	1.27	1.16	0.90
High-nutrient vegetables	.52	.67	1.05	1.17	1.65	1.08	1.61	1.52	1.14	1.91	2.28
Other vegetables	.60	.70	.97	1.25	1.35	1.15	1.86	1.33	1.08	2.68	2.03
Mixtures, mostly vegetable; condiments	.01	.02	.05	.07	.02	.06	.13	.06	.07	.02	.02
Vitamin-C-rich fruit[5]	1.19	1.24	1.32	1.62	1.08	1.17	1.13	1.00	2.02	1.73	1.35
Other fruit[5]	.97	.92	1.61	1.86	1.11	1.04	1.20	1.41	1.30	.93	1.37
Grain products:											
Whole-grain/high-fiber breakfast cereals	.44[6]	.33	.17	.24	.38	.27	.17	.13	.30	.12	.17
Other breakfast cereals	.30[6]	.27	.19	.26	.05	.12	.21	.12	.39	.19	.27
Whole-grain/high-fiber flour, meal, rice, pasta	.11	.14	.12	.11	.20	.22	.15	.21	.16	.15	.18
Other flour, meal, rice, pasta	.88	1.23	1.85	1.73	2.15	2.34	1.81	1.87	1.32	1.81	1.32
Whole-grain/high-fiber bread	.09	.10	.09	.11	.15	.17	.24	.21	.21	.34	.29
Other bread	.38	.65	1.01	1.27	1.68	1.33	1.85	1.33	1.04	.59	.29
Bakery products, not bread	.06	.10	.42	.58	.19	.43	.56	.30	.36	.12	.10
Grain mixtures	.08	.06	.07	.11	.02	.13	.23	.15	.31	.37	.19
Milk, cheese, cream:											
Milk, yogurt (quarts)[7]	3.42	3.06	3.39	4.17	3.99	3.91	2.00	1.63	4.36	2.37	2.17
Cheese	.04	.05	.08	.11	.11	.11	.13	.12	.27	.29	.32
Cream, mixtures mostly milk	.15	.15	.34	.30	.10	.24	.41	.26	.35	.03	.26
Meat and alternates:											
Lower-cost red meats, variety meats	.93	.69	.70	.92	1.20	1.49	1.40	1.73	1.75	1.60	1.95
Higher-cost red meats, variety meats	.15	.11	.13	.19	.18	.26	.39	.54	.20	.35	.55
Poultry	.35	.48	.64	.70	.90	.90	.96	.71	.20	.95	.70
Fish, shellfish	.02	.02	.02	.03	.03	.02	.04	.04	.04	.04	.04
Bacon, sausage, luncheon meats	.18	.32	.31	.24	.26	.27	.56	.49	.24	.45	.45
Eggs (number)	3.00	2.90	1.90	2.50	2.20	3.10	4.10	4.30	4.10	4.40	4.10
Dry beans, peas, lentils (dry weight)[8]	.27	.18	.18	.24	.59	.58	.45	.59	.35	.41	.45
Mixtures, mostly meat, poultry, fish, egg, legume	.05	.06	.01	.01	.02	.03	.13	.15	.20	.13	.15
Nuts (shelled weight), peanut butter	.09	.24	.13	.15	.37	.14	.17	.22	.09	.28	.08
Other foods:[9]											
Fats, oils	.14	.33	.58	.67	.73	.93	.76	.60	.22	.28	.21
Sugar, sweets	.10	.36	.78	.87	1.20	.95	1.01	.76	.31	.21	.22
Soft drinks, punches, ades (single strength)	.39	.57	.65	.87	.87	1.51	1.17	.32	1.12	.40	.38

[1]Quantities are for food as purchased or brought into the household from garden or farm. Food is for preparation of all meals and snacks for a week. About 3 percent of the edible parts of food is assumed to be discarded as plate waste, spoilage, etc.

[2]See table 3 for foods in food groups.

[3]Pregnant and lactating females usually require added nutrients and should consult a doctor for recommendations about diet and supplements.

[4]Quantities in pounds except milk, which is in quarts and eggs, which are by number.

[5]Frozen concentrated juices are included as single strength juice.

[6]Cereal fortified with iron is recommended.

[7]Quantities of dry and evaporated milk and yogurt included as their fluid whole milk equivalents in terms of calcium content.

[8]Count one pound of canned dry beans—pork and beans, kidney beans, etc.—as 0.33 pound.

[9]Small quantities of coffee, tea, and seasonings are not shown. Their cost is a part of the estimated cost for the food plan.

Table 2.--Cost of food at home estimated for the thrifty food plan (TFP 83)[1], June 1982, U.S. average

Sex-age groups	Cost for 1 week	Cost for 1 month
	Dollars	Dollars
HOUSEHOLD[2]		
Household of 2:		
Couple, 20-50 years	35.50	153.90
Couple, 51 years and over	33.90	147.10
Household of 4:		
Couple, 20-50 years and children--		
1-2 and 3-5 years	51.60	223.40
6-8 and 9-11 years	59.00	255.80[3]
INDIVIDUALS		
Child:		
1-2 years	9.30	40.20
3-5 years	10.00	43.30
6-8 years	12.20	53.00
9-11 years	14.50	62.90
Male:		
12-14 years	15.30	66.30
15-19 years	15.90	69.10
20-50 years	16.90	73.30
51 years and over	15.50	67.40
Female:		
12-19 years	15.30	66.20
20-50 years	15.40	66.60
51 years and over	15.30	66.30

[1]The cost of the food plan was first estimated by using average prices paid by households eligible to receive food stamps surveyed in 1977-78. USDA updates these survey prices to estimate the cost for the food plans using information from the Bureau of Labor Statistics: "CPI Detailed Report," table 3. (See page 14 for additional details.)

[2]Costs for "individuals" assume that the individual is in a 4-person household. For individuals in households of other sizes, the following adjustments are suggested: 1-person, add 20 percent; 2-person, add 10 percent; 3-person, add 5 percent; 5- or 6-person, subtract 5 percent; 7-or-more person, subtract 10 percent.

[3]The cost of food in TFP 75 for this household in June 1982 ($256) is the basis for the food stamp allotment effective October 1982. The cost of food in TFP 83 for this household in June 1982 was also $256.

Table 3.—Food groups for USDA food plans[1]

Food group name	Foods included in the food group
Potatoes	White potatoes, dehydrated potatoes, mixtures mostly potato
High-nutrient vegetables[2]	Asparagus, bean sprouts, broccoli, brussels sprouts, cabbage, carrots, cauliflower, green peppers, leafy greens, okra, pumpkin, sauerkraut, summer and winter squash, sweetpotatoes, tomatoes, turnips; tomato and vegetable juices
Other vegetables	All other vegetables including artichokes, beets, celery, corn, cucumbers, eggplant, lettuce, lima beans, mushrooms, onions, parsnips, peas, radishes, rutabagas, snap beans
Mixtures, mostly vegetable; condiments	Catsup, chili sauce, barbecue sauce; tomato and cucumber pickles and relishes; olives; potato chips, sticks; other mixtures, mostly vegetable
Vitamin-C-rich fruit	Cantaloup, grapefruit, honeydew melon, lemons, limes, mangoes, oranges, persimmons, papayas, strawberries, tangelos, tangerines; citrus and citrus-blend juices
Other fruit	All other fruits including apples, apricots, bananas, berries, cherries, dried fruit, grapes, nectarines, peaches, pears, pineapple, plums, watermelon
Whole-grain/high-fiber breakfast cereals	Oatmeal, bran cereal, wheat germ, shredded wheat, granola type, puffed oats, other breakfast cereals made from whole- or high-fiber grains
Other breakfast cereals	Farina, ready-to-eat cereal other than those made from whole- or high-fiber grains
Whole-grain/high-fiber flour, meal, rice, pasta	Whole wheat, buckwheat, soy, barley, rye, millet, peanut, carob, triticale flours and meal; mixes made from whole-grain/high-fiber flours; whole-ground cornmeal; whole-wheat pasta; popcorn; brown rice; leavenings
Other flour, meal, rice, pasta	White enriched flour, mixes made from white enriched flour, leavenings, degermed cornmeal, white enriched rice, grits, enriched pasta
Whole-grain/high-fiber bread	Whole wheat, pumpernickel, bran, rye, oatmeal, triticale breads, rolls, muffins, pancakes
Other bread	White enriched bread, rolls, muffins, bagels, biscuits, pancakes, waffles; cornbread; tortillas
Bakery products, not bread	Enriched and unenriched cakes, pies, tarts, cobblers, crackers, cookies, pastries, doughnuts, pretzels, corn and wheat snacks
Grain mixtures	Soups, mostly grain; pizza; macaroni salad; egg rolls; Spanish rice; macaroni and cheese; spaghetti with tomato sauce; other pasta mixtures and plate meals
Milk, yogurt	Whole milk, lowfat milk, skim milk, buttermilk, nonfat dry milk, imitation milk and formulas, evaporated milk, yogurt, chocolate milk, cocoa with nonfat dry milk
Cheese	Cheddar, Swiss, cottage, other cheeses, imitation cheese, cheese dips, cheese fondue

Table 3.—Food groups for USDA food plans[1]—Continued

Food group name	Foods included in the food group
Cream, mixtures mostly milk	Cream, half and half, sour cream, eggnog, nondairy creamers, puddings, ice cream, ice milk, milkshakes, other frozen desserts, sweetened liquid meal supplements, milk-based soups
Lower-cost red meats, variety meats [3]	Ground beef and pork, beef chuck roast and steak; fresh and cured pork shoulder and Boston butt; beef and lamb stew meat; canned corned beef, roast beef; chipped beef; organ meats such as liver, heart, kidney
Higher-cost red meats, variety meats	Most beef and veal steaks and roasts; cured ham, boiled ham, spareribs, pork loin roast, pork chops; lamb chops, steaks, roasts; variety meats such as brains, tongue, chitterlings
Poultry	Raw and processed chicken, turkey, and other poultry
Fish, shellfish	Raw and processed cod, perch, haddock, sole, and other fish; breaded fish portions and sticks; canned tuna, sardines, and other fish; raw and processed crab, lobster, clams, shrimp, and other shellfish
Bacon, sausage, luncheon meats	Bacon, salt pork, sausage; frankfurters, bologna, salami, liverwurst, other luncheon meats; fatback and other fatty meats; bacon and sausage substitutes
Eggs	Eggs, egg substitutes
Dry beans, peas, lentils	Dry beans of all kinds; dry peas; lentils; soybeans and soya products
Mixtures, mostly meat, poultry, fish, egg, legume	Soups and mixtures, mostly meat, poultry, fish, egg, or legume (plate dinners, entrees such as hamburgers, corned beef hash, chili con carne, chicken and tuna salad, pot pies, fish cakes, egg foo yung, beans and franks, etc.)
Nuts, peanut butter	Peanuts, tree nuts, peanut butter and other nut butters, seeds
Fats, oils	Butter, margarine, hydrogenated vegetable fat, lard, cooking oil, salad dressings
Sugar, sweets	Sugar, granulated, powdered, brown, maple; molasses; sirup; honey; jams; jellies; preserves; powdered dessert mixes and prepared desserts; candy; fruit ices; chocolate sirup and topping; sugar substitutes
Seasonings	Salt, seasonings, vinegar, extracts, spices, plain cocoa, baking chocolate
Soft drinks, punches, ades	Soft drinks, regular and diet; fruit ades, punches, drinks, nectars
Coffee, tea	Coffee, tea

[1]Cost, nutrient composition, and use in meals were considered in grouping foods.
[2]Systematically selected for their relatively high nutrient-to-calorie ratios and content per serving of vitamin A, vitamin B_6, ascorbic acid, iron, and magnesium.
[3]Selected by their relative costs per unit of protein.

Table 4.--Amounts of selected nutrients from a dollar's worth of food[1]

Food group	Food energy	Vitamin B_6	Folacin	Calcium	Iron	Magnesium	Zinc	Fat	Cholesterol	Caloric sweeteners	Sodium
	kcal	mg	mcg	mg	mg	mg	mg	g	mg	g	mg
Potatoes	1,280	3.09	221	120	9.7	535	4.6	5.5	9	0	280
High-nutrient vegetables	290	1.11	362	412	7.1	178	2.9	2.3	0	2	810
Other vegetables	380	.77	257	180	6.7	147	3.6	4.0	4	8	850
Mixtures, mostly vegetable; condiments	940	.45	62	117	4.8	164	1.6	52.1	1	60	4,610
Vitamin-C-rich fruit	590	.60	525	239	3.7	143	1.3	2.0	0	3	20
Other fruit	640	1.18	92	76	4.4	118	.9	4.1	0	18	20
Whole-grain/high-fiber breakfast cereals	1,390	2.36	543	365	49.6	527	12.9	18.9	0	29	2,360
Other breakfast cereals	1,220	5.28	989	158	32.7	119	6.7	5.2	0	69	2,510
Whole-grain/high-fiber flour, meal, rice, pasta	3,080	2.34	230	1,196	24.7	932	23.9	37.2	0	4	3,110
Other flour, meal, rice, pasta	3,740	1.31	188	1,190	37.8	349	9.5	18.6	34	29	3,020
Whole-grain/high-fiber bread	1,380	.84	257	549	15.2	336	8.8	12.0	2	1	2,960
Other bread	2,190	.35	282	899	21.7	172	4.9	29.4	21	7	3,800
Bakery products, not bread	1,500	.15	45	193	9.4	127	2.6	55.6	103	79	2,360
Grain mixtures	730	.29	41	244	6.1	91	4.3	17.4	45	7	4,080
Milk, yogurt	1,060	.74	90	2,111	1.6	235	7.0	53.6	207	4	880
Cheese	750	.18	21	1,229	1.1	50	5.0	58.5	181	0	1,820
Cream, mixtures mostly milk	1,120	.28	21	676	1.4	77	4.7	61.8	195	81	680
Lower-cost red meats, variety meats	560	.78	61	29	5.5	52	8.5	39.0	190	0	260
Higher-cost red meats, variety meats	400	.56	12	22	2.7	38	5.7	27.7	121	0	430
Poultry	480	1.33	90	40	4.7	132	6.3	20.8	256	0	260
Fish, shellfish	220	.44	22	83	2.0	57	2.7	8.5	102	1	460
Bacon, sausage, luncheon meats	960	.36	17	23	3.4	32	5.5	89.8	144	2	2,650
Eggs	1,000	.73	412	356	13.3	76	9.2	71.0	3,467	0	750
Dry beans, peas, lentils	1,940	3.10	878	700	36.4	936	13.8	13.1	9	14	2,480
Mixtures, mostly meat, poultry, fish, egg, legume	550	.61	41	91	4.4	154	5.7	27.9	109	4	2,860
Nuts, peanut butter	1,670	1.00	235	191	6.8	566	8.9	145.9	0	9	1,380
Fats, oils	3,960	.05	5	70	.5	9	.6	440.4	177	7	3,300
Sugar, sweets	2,060	.08	10	165	4.2	71	1.0	10.2	6	496	120
Seasonings	160	.01	3	954	17.3	360	1.5	5.0	0	1	88,070
Soft drinks, punches, ades	650	.06	6	99	1.7	28	.6	0	0	160	240
Coffee, tea	100	.02	33	144	3.9	401	.9	.1	0	0	80

[1]Food used by low-income households in 1977-78 with prices as reported by households updated to January 1981 using change in the Consumer Price Index for detailed food expenditure categories.

Table 5.—Nutritive value[1] of food in consumption patterns[2]

Food component	Child				Male				Female		
	1-2 years	3-5 years	6-8 years	9-11 years	12-14 years	15-19 years	20-50 years	51 years or more	12-19 years	20-50 years	51 years or more
	Percentage of Recommended Dietary Allowance (1980)[3]										
Protein	207	213	226	228	207	182	183	153	170	171	157
Vitamin A value	182	183	180	173	147	134	152	131	143	141	160
Thiamin	158	161	141	157	148	147	130	133	139	131	126
Riboflavin	190	198	183	191	170	164	147	139	162	140	134
Niacin equivalent	250	282	238	252	244	256	271	257	250	276	256
Vitamin B_6*	127	111	108	117	111	103	89	76	79	72	71
Vitamin B_{12}*	164	172	166	200	187	220	220	178	177	157	135
Folacin*	208	137	107	102	87	84	83	72*	69*	63*	63*
Ascorbic acid	143	163	199	234	204	177	170	134	191	164	148
Vitamin E*	101	102	108	130	127	108	145	139	104	138	115
Calcium	81*	100	126	126	102	110	117	98*	80*	87*	82*
Iron	69*	100	147	138	112	118	192	171	81*	76*	135
Magnesium*	125	116	114	114	109	95*	110	99*	95*	96*	89*
Phosphorus	115	142	175	175	150	166	218	185	119	160	148
Zinc*	67*	82	100	101	85	94	95	78*	71*	68*	63*
	Composition of diet										
Food energy (kcal)	1,300	1,600	2,100	2,400	2,700	2,800	2,700	2,400	2,100	2,000	1,800
Cholesterol* (mg)	220	250	290	360*	360*	470*	520*	460*	360*	370*	330
Sodium[5] (mg)	2,900*	3,600*	4,600*	5,700*	6,500*	7,200*	6,900*	5,600*	5,100*	4,800*	4,000*
	Percentage of energy										
Total fat	39*	38*	36*	37*	35	38*	43*	42*	38*	42*	39*
Caloric sweeteners*	12	14*	18*	16*	16*	15*	13*	13*	15*	14*	14*
Protein	15	15	14	14	14	15	15	14	15	15	15

[1]Nutritive value of the edible portion of food as purchased, adjusted to allow for losses in cooking for vitamins, except folacin. One-half of the drippings and trimmable fat from meat, poultry, and fish was assumed as discard.

[2]Estimated quantities of food used (as purchased) to prepare meals and snacks for individuals. Based on unpublished data from a special group of about 4,400 low-income housekeeping households (eligible for the Food Stamp Program) surveyed November 1977-March 1978 as part of the Nationwide Food Consumption Survey 1977-78. Quantities were adjusted proportionately to provide the Recommended Dietary Allowance (RDA) (1980) midpoint for food energy.

[3]RDA derived for specified sex-age categories by interpolation.

*Based on limited food composition data.

[5]Based on limited food composition data. Content of patterns may be unrealistically high because quantities of salt and other seasonings are based on reported purchases, some of which may not have been used as food. Examples of sodium levels in patterns if salt and seasonings are excluded are 3,200, 2,300, 2,700, and 2,300 mg respectively for the man 20-50 years, woman 20-50 years, child 9-11 years, and child 6-8 years.

*NOTE: Failed to meet following levels: RDA or more for protein and vitamins and minerals with these exceptions—80 percent RDA or more for folacin, vitamin E, and zinc; 90 percent RDA for iron for child 1-2 years old; 0.02 mg of vitamin B_6 per gram of protein; and no more than 35 percent of energy from fat, 12 percent of energy from caloric sweeteners, 350 mg of cholesterol, and 1,600 mg sodium/1,000 kcal.

Table 6.—Nutritive value[1] of food in the thrifty food plan, 1983[2]

Food component	Child				Male				Female		
	1-2 years	3-5 years	6-8 years	9-11 years	12-14 years	15-19 years	20-50 years	51 years or more	12-19 years	20-50 years	51 years or more
	Percentage of Recommended Dietary Allowance (1980)[3]										
Protein	238	204	202	200	202	165	159	155	182	196	186
Vitamin A value	214	189	167	159	138	126	143	131	172	189	213
Thiamin	194	181	148	158	149	150	149	156	179	176	162
Riboflavin	237	207	171	175	155	150	144	145	205	176	173
Niacin equivalent	290	281	218	224	232	232	235	251	276	306	285
Vitamin B_6[4]	154	114	95*	100	101	95*	85*	82*	97*	94*	96*
Vitamin B_{12}[4]	205	155	128	149	156	176	156	164	209	168	190
Folacin[4]	263	156	103	97*	90*	86*	91*	84*	94*	92*	89*
Ascorbic acid	143	152	174	201	170	143	151	130	186	176	171
Vitamin E[4]	80*	104	123	144	144	123	118	102	80*	97*	82*
Calcium	100	100	120	120	100	103	115	100	100	113	104
Iron	90*	115	151	136	116	123	209	194	105	100	171
Magnesium[4]	160	129	112	110	119	100	104	101	115	118	104
Phosphorus	144	148	168	165	153	162	203	197	143	201	188
Zinc[4]	80*	80*	85*	84*	80*	82*	80*	80*	80*	80*	80*
	Composition of diet										
Food energy (kcal)	1,300	1,600	2,100	2,400	2,700	2,800	2,700	2,400	2,100	2,000	1,800
Cholesterol[4] (mg)	230	230	220	270	270	330	350	350	350	350	350
Sodium[4] (mg)	1,600	1,900	2,300	2,700	3,000	3,700	4,000	3,000	3,100	3,000	2,300
	Percentage of energy										
Total fat	32	35	34	34	34	35	35	35	32	35	35
Caloric sweeteners[4]	6	9	12	12	12	11	12	10	8	5	6
Protein	17	14	12	13	14	13	13	15	16	17	18

[1] Nutritive value of the edible portion of food as purchased, adjusted to allow for losses in cooking for vitamins, except folacin. One-half of the drippings and trimmable fat from meat, poultry, and fish was assumed as discard.

[2] Quantities of food as shown in table 1. Nutritive value per pound of food groups is based on the average quantities of foods used by a special group of about 4,400 low-income households (eligible for the Food Stamp Program) surveyed November 1977-March 1978 as part of the Nationwide Food Consumption Survey 1977-78.

[3] RDA derived for specified age-age categories by interpolation.

[4] Based on limited food composition data.

*NOTE: Although the plan failed to provide the RDA, it met standards specified for the plan: 80 percent RDA for folacin, vitamin E, and zinc; 90 percent RDA for iron for child 1-2 years old; and 0.02 mg of vitamin B_6 per gram of protein.

Table 7.--Thrifty food plan, 1983: A day's food as served

Food [1]	Unit	Child (years)				Male (years)				Female (years)		
		1-2	3-5	6-8	9-11	12-14	15-19	20-50	51 and over	12-19	20-50	51 and over
		Number of units per day										
Vegetables, fruit	1/2 c	2.1	2.5	3.4	4.0	3.7	3.8	4.3	3.9	3.9	4.9	4.6
Cereal, pasta, dry	1 oz [2]	2.6	2.6	2.7	2.9	3.2	3.3	2.7	2.6	2.9	2.6	2.4
Bread [3]	1 slice	3.0	4.3	6.2	6.7	8.6	8.3	8.4	7.4	5.6	5.8	4.2
Bakery products [3]	1 slice	.1	.2	.9	1.2	.4	.9	1.2	.7	.8	.3	.2
Milk, yogurt	1 c	1.8	1.5	1.7	2.1	1.9	1.9	.9	.7	2.2	1.1	1.0
Cheese (per week)	1 oz	.6	.8	1.2	1.6	1.6	1.6	2.0	1.9	4.1	4.4	4.8
Meat, poultry, fish, boned [4]	1 oz	2.0	2.0	2.1	2.4	3.0	3.5	4.0	4.3	3.1	4.1	4.5
Eggs (per week)	no.	2.8	2.7	1.8	2.4	2.1	3.0	3.9	4.1	3.9	4.2	3.9
Dry beans, peas, cooked; nuts	1/2 c	.4	.4	.3	.4	1.0	.9	.7	1.0	.5	.7	.6
Fats, oils	1 tbsp	.5	1.2	2.3	2.7	2.9	3.7	3.1	2.3	.7	.9	.7
Sugar, sweets	1 tbsp	.3	1.6	3.7	4.2	5.9	4.3	4.9	3.6	1.2	.7	.8
Soft drinks, punches, ades	1 c	.1	.1	.2	.2	.2	.4	.3	.1	.3	.1	.1

[1] Excludes commercially prepared mixtures except bread and bakery products.

[2] 1 oz of dry cereal or pasta is about 1 serving.

[3] Bread is commercially prepared bread and bread assumed to be made at home from flour and meal and some milk, fat, and sugar, in terms of food as purchased. Ingredients used other than flour and meal in homemade bakery products in excess of those required to make bread are included in the group of the ingredient. Bakery products shown are only commercially prepared types.

[4] Lean parts of meat and poultry. Includes some bacon, sausage, and luncheon meats.

Table 8.--Diet quality of households at four food cost levels, 1977-78

Food cost level[1]	Percent of households with money value of food used[2] below the cost level	Percent of households using food that furnished--	
		1974 RDAs for 11 nutrients[3]	80 percent of 1974 RDAs for 11 nutrients
All households	---	50	71
Thrifty plan	12	9	33
Low-cost plan	30	31	64
Moderate-cost plan	52	52	81
Liberal plan	70	69	89

[1]Cost of food in the USDA food plans for a four-person household (man and woman 20-54 and children 6-8 and 9-11 years of age) adjusted for household size and economy of scale factors used in establishing the food stamp allotment.

[2]Adjusted to include an at home value of food bought and eaten away from home and to exclude food eaten in the household by nonhousehold members.

[3]Protein, calcium, phosphorus, iron, magnesium, vitamin A value, thiamin, riboflavin, vitamin B_6, vitamin B_{12}, vitamin C.

Source: 14,400 housekeeping households, Nationwide Food Consumption Survey 1977-78, 48 States.